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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,541	11/29/2000	Karl M. Bizjak	51992-010	4942

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EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/728,541

Applicant(s)

BIZJAK ET AL.

Examiner

Brian T. Pendleton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments, see pages 12-17 of the Remarks, filed 4/5/06, with respect to the rejection(s) of claim(s) 1-30 under 35 U.S.C. 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Cornelisse, US Patent Application Publication 2002/0076072 or Anderson et al, US Patent 4,934,770 or Goldstein.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al.

Figure 1 discloses a compression system comprising a main amplifier 32 (which is deemed a compander for the purposes of the rejection), user set parameter 35, and transform engine 27 for controlling operation of the main amplifier 32 and setting the volume of the system.

Claims 1-5, 7, 8-11, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Cornelisse. In figures 3 and 7B, Cornelisse discloses an input signal 34, analysis filter 42 for separating the input signal into a plurality of frequency band signals, and digital signal processor 46 which is the compander. The processor 46 has a transform engine 122 for setting the gains

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130 (volume), based on user set parameters 106. The preprocessor is the A/D converter 38.

There is disclosed a preamplifier 36.

Claims 1 are rejected under 35 U.S.C. 102(e) as being anticipated by Goldstein.

Goldstein discloses an apparatus comprising compander 108 and transform engine 130 which is responsive to a user-set parameter to control operation of the compander and set system volume control. Paragraphs 138-143 disclose the user set parameters.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 12-15 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornelisse in view of Nakano et al. Cornelisse does not disclose a histogram and statistics engine for monitoring at least one compander operating parameter. Nakano et al disclose an automatic gain control apparatus comprising a statistics engine which generates a histogram for the purpose of gain control (column 7 line 40 – column 8 line 2). It would have been obvious to one of ordinary skill in the art at the time of invention to use a statistics engine, as taught by Nakano, in the invention of Cornelisse for the purpose of improving the performance of the companding through digital signal processing. The use of histograms made it possible to invoke gain control at the processors own sampling rate. As to claims 13-15, the benefits of statistical engines were established and therefore it would have been obvious to utilize them for any of the components of the apparatus of Cornelisse, including the claimed components.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cornelisse in view of Yumoto et al. Cornelisse does not disclose a central power estimator mixer responsive to the

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plurality of companders. Yumoto et al disclose a method comprising pre-processor circuitry 22 (figure 3) which is a power estimator mixer. The estimation of the power of the incoming signals is used for volume control in volume control unit 28. The benefit of the power estimator mixer was to maintain a constant volume output level for the audio signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cornelisse to have a power estimator mixer, such as that taught by Yumoto, at the outputs of the companders for the keeping the output level of the hearing aid consistent which would avoid high volume levels damaging the ears of the user.

Claims 18-24 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornelisse in view of Fischer. Cornelisse does not disclose a noise extractor for generating a compensation input to the transform engine. Fischer discloses a hearing aid comprising microphones 12, 12'; side signal reduction unit 20 and back signal reduction unit 22 each having a compensation unit. The outputs of the reduction units being mixed in mixer unit 24 for output to amplifier 28 and speaker 30. The reduction units are used for noise suppression thereby enhancing the speech heard by the user. Thus, Fischer discloses a noise extractor whereby the reference signal is the signals picked up by the microphone unit 10. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Cornelisse, per the teachings of Fischer, having a noise extractor unit for the purpose of increasing the intelligibility of the input sound signals.. Claims 18-20 are met. As to claims 21-24, 26-29, the combination of Cornelisse and Fischer teach the limitations, as modified.

Claims 25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornelisse in view of Fischer, as applied to claims 23 and 28, and further in view of Nakano et

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al. The combination of Cornelisse and Fischer does not disclose a histogram and statistics engine for modifying system operating parameters. Nakano et al disclose an automatic gain control apparatus comprising a statistics engine which generates a histogram for the purpose of gain control (column 7 line 40 – column 8 line 2). It would have been obvious to one of ordinary skill in the art at the time of invention to use a statistics engine, as taught by Nakano, in the combination for the purpose of improving the performance of the companding through digital signal processing. The use of histograms made it possible to invoke gain control at the processors own sampling rate.

Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornelisse. Cornelisse does not disclose that the user set parameter is a user minimum output level, a source input dynamic range, or two of a user minimum output level, a source input dynamic range, or user volume control level. Nevertheless, Examiner takes Official Notice that such parameters were well known at the time of invention to one of ordinary skill in the art and it would have been obvious to implement any combination of those parameters for the purpose of realizing the best hearing aid fit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian T. Pendleton
Primary Examiner
Art Unit 2615



btp